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# ***The 2001 Institutional Controls Inspection, Environmental Monitoring, and Site Maintenance Report for Waste Area Group 1***



Idaho National Engineering and Environmental Laboratory

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Environmental Monitoring, and Site Inspection Report  
for Waste Area Group 1**

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## **SUMMARY**

This report presents the results of the annual inspection activities and maintenance activities at Waste Area Group 1, Test Area North, on the Idaho National Engineering and Environmental Laboratory. The inspection activities fall into three categories: 1) inspections required by the Operations and Maintenance Plan for Operable Unit 1-10 (DOE/ID-10899), 2) annual environmental monitoring activities at six specific Comprehensive Environmental Response, Compensation, and Liability Act sites, and 3) inspection activities required by the Institutional Control Plan for Test Area North Waste Area Group 1 (INEEL/EXT-2000-00917). These inspections have been performed for the first time in 2001 and will serve as a basis for comparison in future years, as well as providing immediate information for current maintenance activities.

This report also contains information about the No Action sites at Waste Area Group 1. As part of the implementation of institutional controls at Waste Area Group 1, signs labeled "Institutionally Controlled Area" have replaced older signs labeled "Environmentally Controlled Area." Several No Action sites do not require institutional controls, and do not pose an unacceptable risk to human health. The "Environmentally Controlled Area" signs have been removed from the No Action sites, and these sites, with coordinates, are recorded herein.



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# **The 2001 Institutional Controls Monitoring Report for Waste Area Group 1**

## **1. INTRODUCTION**

The Test Area North (TAN) is located in the north-central portion of the Idaho National Engineering and Environmental Laboratory (INEEL) and is approximately 41 ha (102 acre). The TAN is comprised of four facilities: (1) the TAN Technical Support Facility (TSF), (2) the Initial Engine Test (IET) facility, (3) the Water Reactor Research Test facility (WRRTF), and (4) the Specific Manufacturing Capability facility/Loss of Fluid Test Facility. The TAN has been designated Waste Area Group 1 (WAG 1). Within WAG 1, Operable Unit 1-10 performs the activities described in this report. Refer to Figure 1 for a map showing the INEEL and the location of TAN and these four facilities.

The TAN was originally built between 1954 and 1961 to support the Aircraft Nuclear Propulsion Program sponsored by the U.S. Air Force and the Atomic Energy Commission. The program objectives were to develop and test designs for nuclear-powered aircraft engines. Upon termination of this research in 1961, the area facilities were converted to support a variety of other Department of Energy (DOE) research projects. From 1962 through the 1980s, the area supported reactor safety testing at the Loss of Fluid Test Facility. Beginning in 1980, the area was used to conduct work with material from the 1979 Three-Mile Island reactor accident.

Current activities at TAN include the manufacture of armor for military vehicles at the specific Manufacturing Capability facility. Operational activities have ceased at other TAN facilities. Environmental restoration and decommissioning activities are ongoing and will continue in future years.

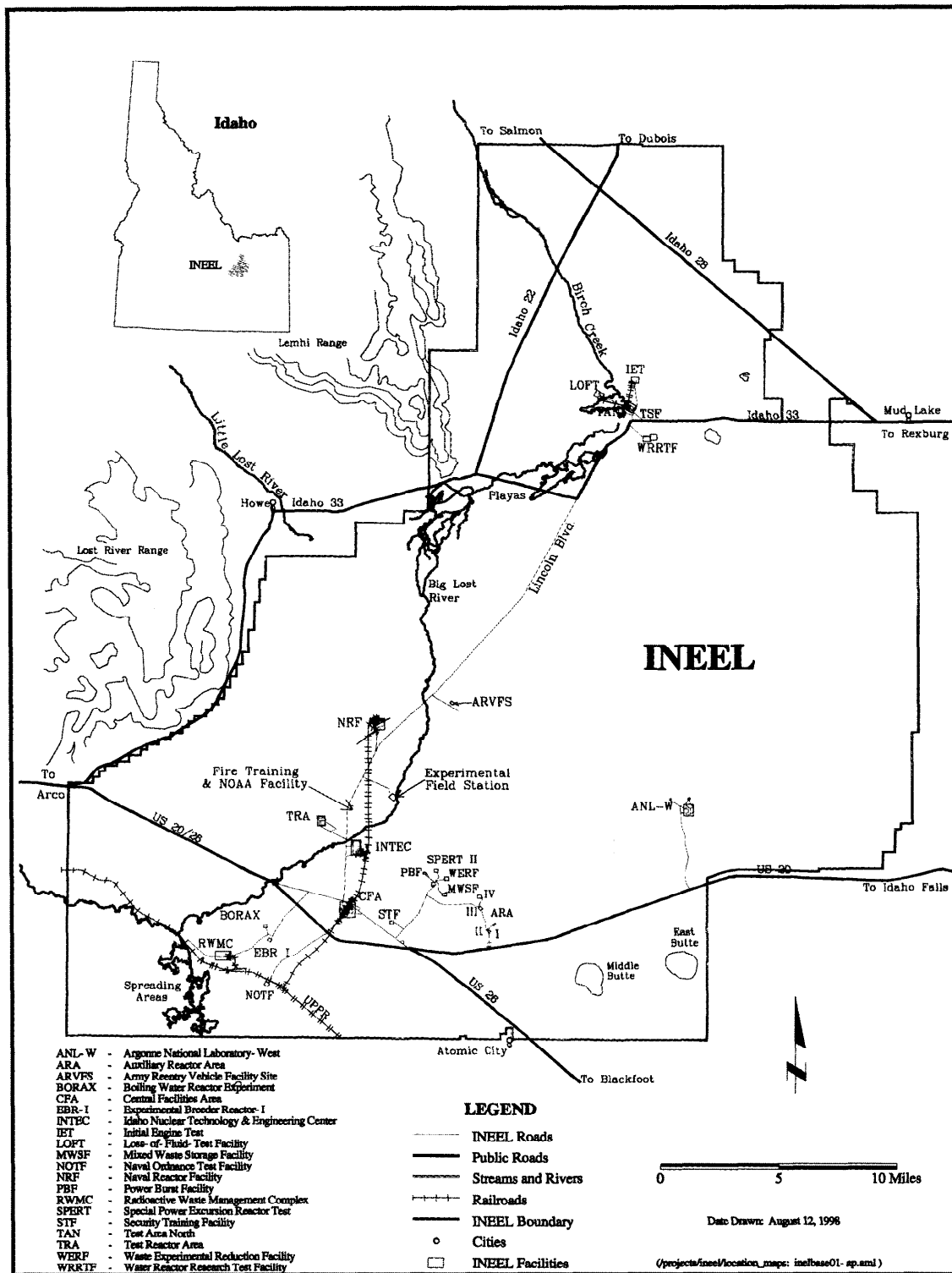


Figure 1. Locations of INEEL and TAN.

## **2. PURPOSE AND METHODS OF INSPECTIONS**

This report presents the results of the following activities:

- Site-specific maintenance inspections
- Environmental monitoring at specific sites to determine whether radioactive contaminants have migrated because of wind or other mechanisms
- Inspection of institutionally controlled areas
- Maintenance performed as a result of the above inspections.

Twenty sites at TAN have been designated as requiring institutional controls. The controls were installed in December 2000, and have been inspected in March 2001 during this annual inspection cycle, in accordance with the Operable Unit (OU) 1-10 operations and maintenance (O&M) plan (DOE/ID-10899).

This inspection cycle also covered activities required by the OU 1-10 O&M plan (DOE/ID-10899) and the first annual environmental monitoring of four specific CERCLA sites at TAN. As this is the first time these inspections have been performed, this report will serve as a basis for comparison when this inspection cycle is repeated in future years.

### **2.1.1 Site-Specific Maintenance Inspection**

Six sites are specified in the OU 1-10 O&M plan as requiring inspection for soil erosion, soil subsidence, and signs of intrusion. The sites are TSF-06 Area B, TSF-07, TSF-26, TSF-03, WRRTF-01, and TSF-09/-18 (TSF-09 and TSF-18 are located close to each other and are treated as one for maintenance inspections). No operational activities are scheduled at these sites. Maintenance activities are performed on an as-needed basis. The inspection is performed by a knowledgeable representative of WAG 1 Environmental Restoration, using an appropriate field inspection logbook.

### **2.1.2 Environmental Monitoring**

Four sites are specified in the OU 1-10 O&M plan as requiring environmental monitoring for radioactive contamination. The sites are TSF-06 Area B, TSF-07, TSF-09/-18, and TSF-26. The monitoring is performed using the global positioning radiometric scanning system (GPRSS). This vehicle-mounted system is used to characterize the extent of gamma-emitting radionuclide contamination in surface soil, chiefly Cs-137 contamination. The GPRS vehicle, shown in Figure 2, consists of two large-area plastic scintillation radiation detectors mounted on the front of an all-terrain vehicle equipped with global positioning system navigation instruments.

### **2.1.3 Institutionally Controlled Area Inspection**

There are 20 institutionally controlled areas requiring inspection at TAN. They are IET-04, TSF-03, TSF-05, TSF-06 Area 1, TSF-06 Area 5, TSF-06 Area 11, TSF-06 Area B, TSF-07, TSF-08, TSF-09, TSF-10, TSF-18, TSF-23, TSF-26, TSF-28, TSF-29, TSF-39, TSF-42, TSF-43, and WRRTF-01. The inspection is performed by a knowledgeable representative of WAG 1 Environmental Restoration, using an appropriate field inspection logbook.

Two sites, TSF-05 and TSF-23, are maintained as part of OU 1-07B. Inspection and maintenance of the institutional controls at these sites are performed with the OU 1-10 institutional control sites. The TSF-05 and TSF-23 sites are associated with the groundwater contamination beneath TAN, and numerous associated well heads and well houses require inspection (see Section 3.3).

### 3. RESULTS OF INSPECTIONS

#### 3.1 Site-Specific Maintenance

The inspection of TSF-06 Area B, TSF-07, TSF-09/-18, TSF-26, TSF-03, and WRRTF-01 for soil erosion, soil subsidence, and signs of intrusion was performed on March 22, 2001. Condition of the fencing at some of the sites was also noted in the field logbook at the request of TAN operations for reasons not required in the OU 1-10 O&M Plan. The findings recorded in the field logbook are summarized in Table 1.

Table 1. Inspection of O&M Sites at OU 1-10.

Site	Signs of Intrusion	Fence Condition	Subsidence/ Erosion	Signs in Place
Soil Contamination area TSF-06 Area B	No intrusion	Rope fence in good condition	None	Yes
Disposal Pond TSF-07	No intrusion	Fence in same condition as March 2000	None	Yes
V-Tanks TSF-09/-18	No intrusion	Good condition	None	Yes
PM2A Tanks Area TSF-26	No intrusion	Good condition	None	Yes
Burn Pits TSF-03/WRRTF-01	Signs of recent boring efforts present but no signs of unwarranted intrusion	No fence present	Signs of old subsidence evident at both locations, and borehole needs filling	Sign at TSF-03 was down and was rehung WRRTF-01 in good condition

The following maintenance activities were performed on March 23, 2001:

- At TSF-03 Burn Pit, the sign and sign post were on the ground. The post was replaced. The sign was rehung.
- The signs at TSF-07 were resurfaced to replace the location maps to accurately show the "You Are Here" positions.
- The TSF-18 site was found to be correctly signed and fenced. Some windblown vegetation and trash were noted along the fence line, outside the site. This debris was removed by TAN personnel and the improvement was noted on May 17, 2001.
- The WRRTF-01 Burn Pits I, II, III, and IV showed settling of material in the boreholes from the recent sampling activities. Personnel from TAN placed gravel in the boreholes and the improvement was noted on May 17, 2001.

### **3.2 Environmental Monitoring**

Environmental monitoring was performed on June 18, 2001 by surveying the perimeter of TSF-26, TSF-07, TSF-06 Area B, and TSF-09/-18 using the GPRSS. Figure 3 shows the results of the survey at TSF-07. Figure 4 shows the results of the survey at TSF-06 Area B. Figure 5 shows the results of the survey at TSF-26. Figure 6 shows the results of the survey at TSF-09/-18, which are very closely located. The results are reported in counts per second. The maximum activity measured at all the locations surveyed was 9,583 counts per second, which converts to 0.114 mrem/hr. The mean activity measured was 1,779 counts per second, which converts to 0.024 mrem/hr. This information should be considered a baseline for comparison when the inspection is repeated in future years.

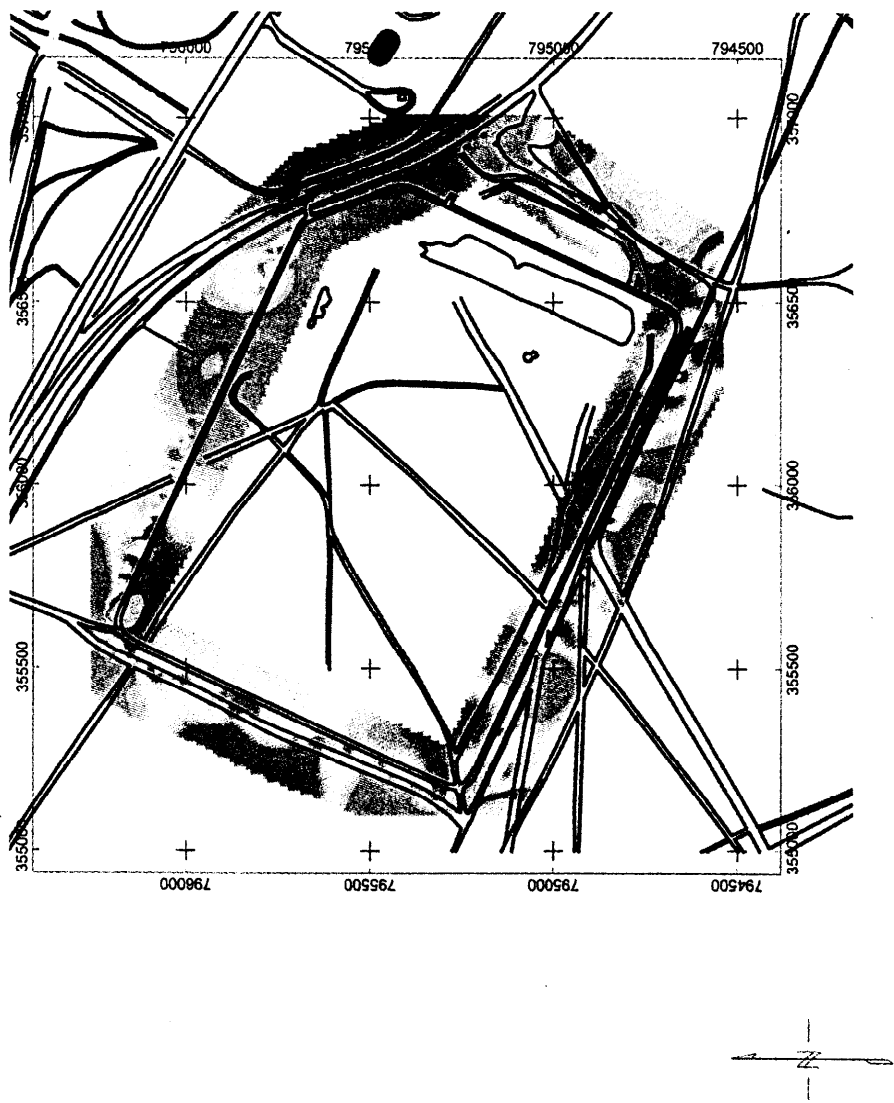
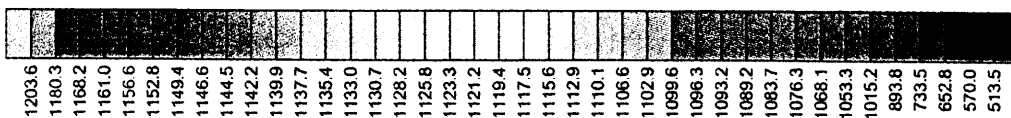
### **3.3 Institutional Control Sites**

The inspection of the 20 institutional control sites at WAG 1 showed very few instances where maintenance or upkeep was needed. The institutional controls at the following sites are in good condition, and no maintenance was performed: TSF-06 Area 5, TSF-06 Area 11, TSF-10, TSF-28, TSF-29, TSF-39, TSF-42, TSF-06 Area B, TSF-18, TSF-09, TSF-03, WRRTF-01 and TSF-43. The following notes were made during the March 22 inspection:

- The site IET-04 was inaccessible on March 22, 2001. The site was visited on May 17 and found to be in good condition.
- At TSF-06 Area 1, the institutional control sign was in place but not fully secured. Wire was used to reattach the corner that had broken loose. It was noted that a small section of the perimeter fence had sustained some damage during the winter months.
- The TSF-08 sign is located approximately 35 ft west of the corner indicated on the "You Are Here" map. The sign is in good condition. The fence post and sign have been relocated.
- At TSF-03 Burn Pit, the sign and sign post were on the ground. The post was replaced. The sign was rehung.
- The signs at TSF-07 were resurfaced to replace the location maps to accurately show the "You Are Here" positions.

The Institutionally Controlled Area signs at TSF-23 wells and well heads, including TSF-05, were inspected on March 22, 2001. The condition of the institutional control signs was recorded, as well as the condition of the well caps and lock mechanisms. The locks were inspected for security purposes as requested by OU 1-07B management. All institutional control signs at TSF-23 well heads and well houses required additional labeling to include trichloroethene (TCE) as a contaminant of concern. The wells or well houses listed in Table 2 were relabeled on March 22, 2001.

During the inspection, it was noted that TAN-35 well is completely wrapped in plastic and tape with a drilling rig nearby. The institutional control sign has not been placed at this site because the owner has not been present and the well is inaccessible. It was also noted that TSF-05 Well House was not locked; OU 1-07B management was so advised.



OU 1-10 O&M Plan TSF-07  
 Readings are in Total Counts per Second  
 06/18/01

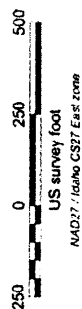


Figure 3. Results of the environmental monitoring survey at TSF-07.

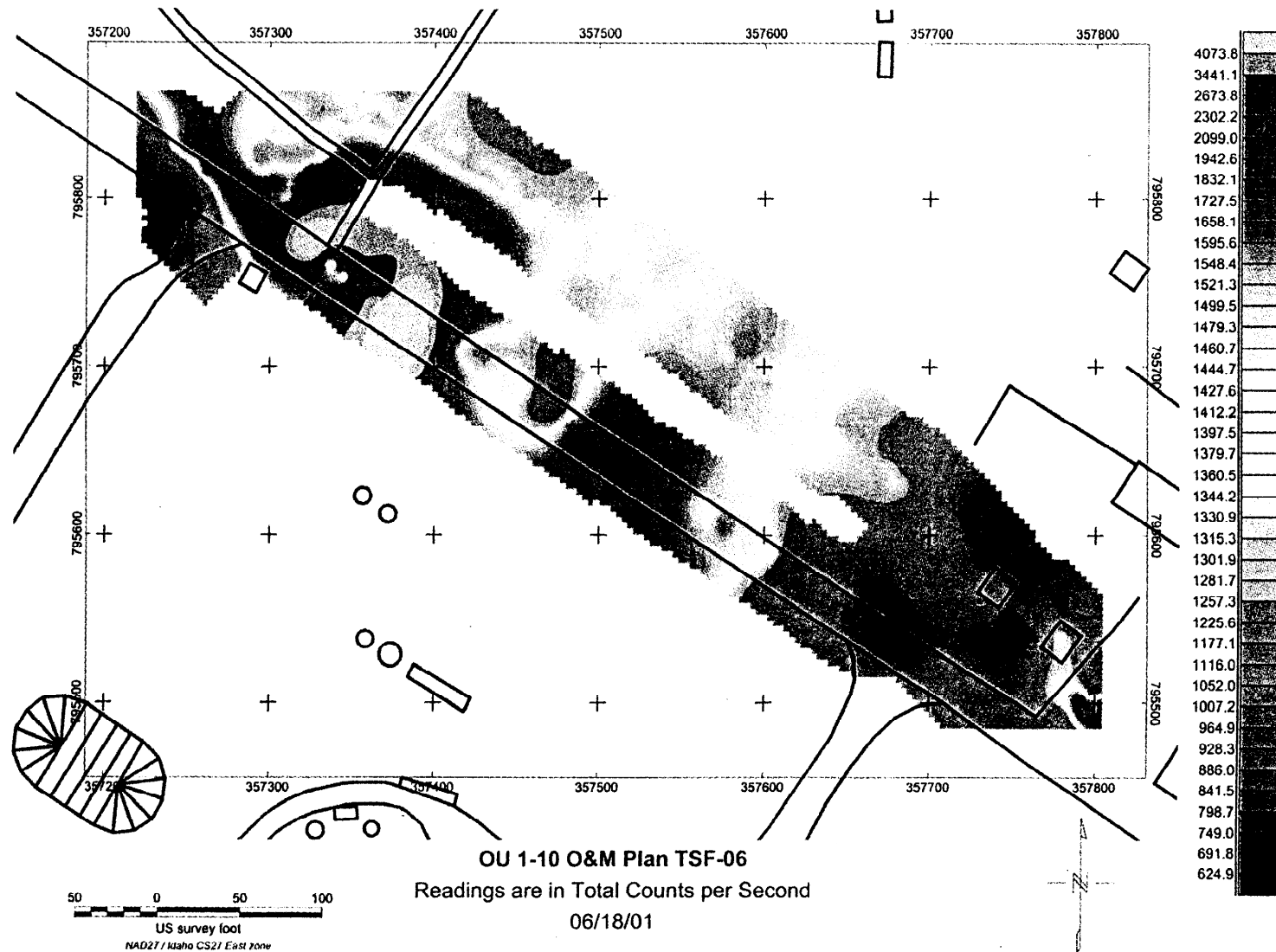


Figure 4. Results of the environmental monitoring survey at TSF-06 Area B.

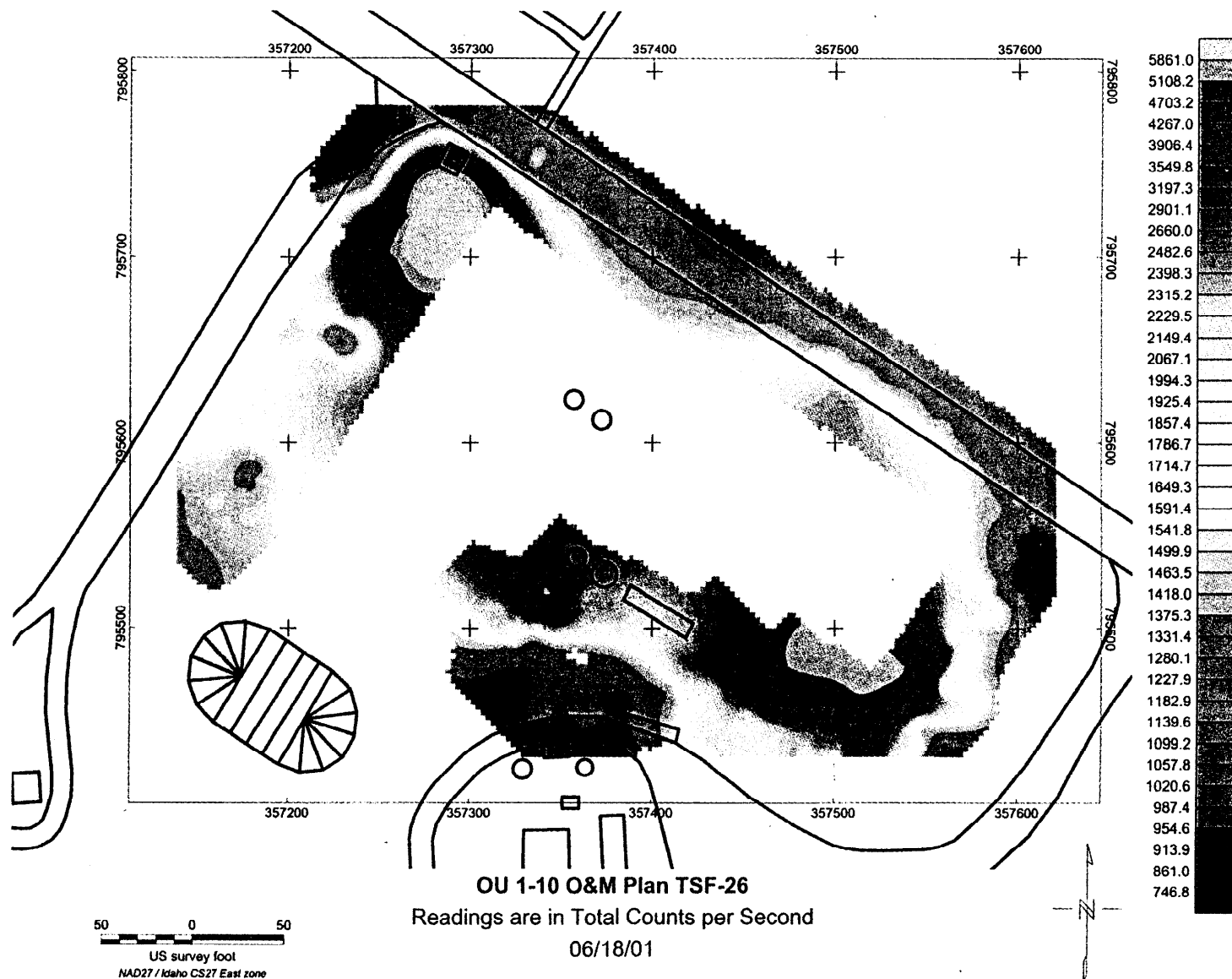


Figure 5. Results of the environmental monitoring survey at TSF-26.

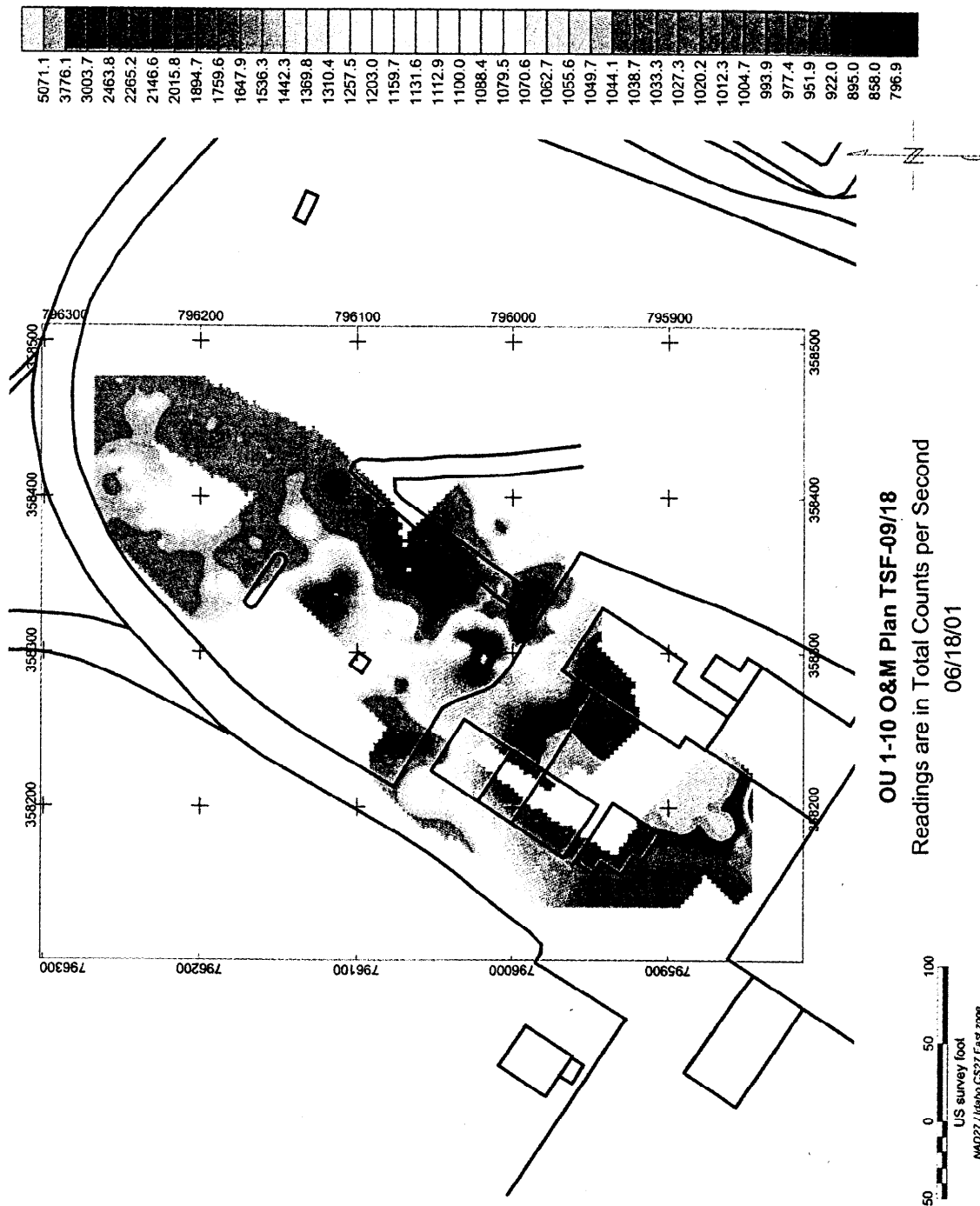


Figure 6. Results of the environmental monitoring survey at TSF-09 and -18.

Table 2. Wells in TSF-23.

ANP-8	TAN-9	TAN-22A	TAN-37	TAN-51
GIN-1	TAN-10	TAN-23A	TAN-38	TAN-52
GIN-2	TAN-10A	TAN-24A	TAN-39	TAN-53
GIN-3	TAN-11	TAN-25	TAN-40	TAN-54
GIN-4	TAN-12	TAN-26	TAN-41	TAN-55
GIN-5	TAN-13A	TAN-27	TAN-42	TAN-56
TAN-1	TAN-14	TAN-28	TAN-43	TAN-57
TAN-2	TAN-15	TAN-29	TAN-44	TAN-58
TAN-3	TAN-16	TAN-30A	TAN-45	TAN-CH1
TAN-4	TAN-17	TAN-31	TAN-46	TAN-CH2
TAN-5	TAN-18	TAN-32	TAN-47	TSF-05
TAN-6	TAN-19	TAN-33	TAN-48	USGS-24
TAN-7	TAN-20	TAN-34	TAN-49	TAN-D1 (Drainage Disposal)
TAN-8	TAN-21	TAN-36	TAN-50	TAN-D2 (Drainage Disposal)

## 4. REFERENCES

- DOE-ID, 2000, *Operations and Maintenance Plan for Test Area North, Operable Unit 1-10*, DOE/ID-10711, Revision 0, U.S. Department of Energy Idaho Operations Office.
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